



## Research Plan (1A)

This completed form is required for ALL projects.

Type or print all information requested.

Answer all questions and complete Research Plan Attachment (see page 28)

- 1) Student's Name Katherine Kenyon Grade 12
- 2) Title of Project The Surface Warfare Simulator (SWS) computer program
- 3) Adult Sponsor Mark Clemente Phone: (757) 721-4110 ext. 77787 Email: MACLEMEN@vbschools.com
- 4) Is this a continuation from a previous year? ☐ Yes ☒ No  
If Yes: a) Attach the previous year's abstract, Research Plan 1A and Research Plan Attachment and  
b) Explain how this project is new and different from previous years on Continuation Form (7)
- 5) This year's laboratory experiment/data collection will begin: (must be stated (mm/dd/yy))  
Projected Start Date: 09/01/2005 Projected End Date: Feb. 15, 2006  
ACTUAL Start Date: 10/06/2005 ACTUAL End Date: \_\_\_\_\_
- 6) Where will you conduct your lab work? (check all that apply) ☐ Research Institution ☐ School ☒ Field ☒ Home
- 7) Name, address & phone of school and work site(s):
- | School:                         | Work site:                      | Work site:              |
|---------------------------------|---------------------------------|-------------------------|
| <u>Ocean Lakes High School</u>  | <u>Home</u>                     | <u>USS Oak Hill</u>     |
| <u>885 Schumann Drive</u>       | <u>2248 Natoma Drive</u>        | <u>Little Creek, VA</u> |
| <u>Virginia Beach, VA 23454</u> | <u>Virginia Beach, VA 23456</u> | <u>(757) 462-7110</u>   |
| <u>(757) 721-4110</u>           | <u>(757) 471-6115</u>           |                         |

- 8) All projects require completed forms: Checklist for Adult Sponsor/Safety Assessment Form (1), Research Plan (1A), Research Plan Attachment and Approval Form (1B). If research was conducted in a site other than school (K-12), field, or home, a Regulated Research Institutional/Industrial Setting Form (1C) should be completed.

Check ALL items that apply to your research.

The following areas require review and approval by SRC or IRB prior to experimentation :

- ☐ Humans (requires prior IRB approval; complete Forms: Checklist, 1A, 1B, 4 [1C, 2, 3, if required])
- ☐ Vertebrate Animals (requires prior SRC or IACUC approval; complete: Checklist, 1A, 1B, 5A or 5B [1C, 2, 3, if required])
- ☐ Potentially Hazardous Biological Agents (requires prior SRC//IACUC/IBC/RAC approval; complete Forms: Checklist, 1A, 1B, 6A [1C, 2, 3, 6B as required])
- ☐ Controlled Substances (requires prior SRC approval; complete Forms: Checklist, 1A, 1B, 2 or 3 [1C, 2, 3 as required])

The following area requires approval by a Designated Supervisor prior to experimentation:

- ☐ Hazardous Substances or Devices (complete Forms: Checklist, 1A, 1B, 3 [1C, if required])

- 9) Complete Research Plan Attachment (See page 28) and attach to this form.
- 10) An abstract is required for all projects after experimentation (see page 25).

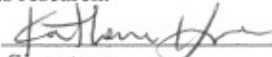
# Approval Form (1B)

This completed form is required for ALL projects.

## 1) REQUIRED FOR ALL PROJECTS.

- a) **Student Acknowledgment:** I understand the risks and possible dangers to me of the proposed **Research Plan (1A)**. I will adhere to all International Rules when conducting this research.

Katherine Kenyon  
Student's Printed Name

  
Signature

05/30/05  
Date Acknowledged  
(Must be prior to experimentation.)

- b) **Parent/Guardian Approval:** I have read and understand the risks and possible dangers involved in the **Research Plan (1A)** and **Attachment**. I consent to my child participating in this research.

Jack Kenyon  
Parent/Guardian's Printed Name

  
Signature

05/30/05  
Date of Approval  
(Must be prior to experimentation.)

- c) **Adult Sponsor Approval:** I have read the **Research Plan (1A)** and **Attachment** prior to experimentation and reviewed the **Checklist for Adult Sponsor** with the student. I agree to sponsor the student named above and assume reasonable responsibility for compliance with all International ISEF Rules as they pertain to the **Research Plan (1A)**.

Mark Clemente  
Adult Sponsor's Printed Name

  
Signature

05/30/05  
Date of Approval  
(Must be prior to experimentation.)

## 2) REQUIRED FOR PROJECTS REQUIRING SRC/IRB APPROVAL. SIGN 2a OR 2b AS APPROPRIATE.

- a) **Required for projects that need prior SRC/IRB approval BEFORE experimentation** (i.e., see Item #8 on Form 1A.)

The SRC/IRB has carefully studied this project's **Research Plan (1A)** and **Attachment** and all the required forms are included. My signature indicates approval of the **Research Plan (1A)** before the student begins experimentation.

\_\_\_\_\_  
SRC/IRB Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval  
(Must be prior to experimentation.)

OR

- b) **Required for research conducted at all Regulated Research Institutions with no prior fair SRC/IRB approval.**

This project was conducted at a regulated research institution (**not home or high school, etc.**), was reviewed and approved by the proper institutional board before experimentation and complies with the ISEF Rules. **Attach (1C) and required institutional approvals (e.g. IACUC, IRB)**

\_\_\_\_\_  
SRC/IRB Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

**NOTE:** If a stamp is used, it must be initialed by the chairperson.

## 3) FINAL ISEF AFFILIATED FAIR SRC APPROVAL. (REQUIRED FOR ALL PROJECTS)

**SRC Approval After Experimentation and Shortly Before Competition at Regional/State/National Fair**  
I certify that this project adheres to the approved **Research Plan (1A)** and **Attachment** and complies with all ISEF Rules.

\_\_\_\_\_  
Regional SRC Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

\_\_\_\_\_  
State/National SRC Chair's Printed Name  
(where applicable)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

## Research Plan Attachment

**REQUIRED for ALL Projects**

**A complete research plan must accompany Research Plan Form (1A)**

**Additional pages may be attached**

Student Name(s): Katherine Kenyon

**Provide a typed research plan and attach to Research Plan Form (1A).**

**The research plan is to include the following:**

**A. Question being addressed**

**B. Hypothesis/Problem/Engineering Goals**

**C. Description in detail of method or procedures** (including chemical concentrations and drug dosages)

For human research, include survey or questionnaires if used, and critically evaluate the risk. See instructions for human research on p. 12 of the Rules. **For vertebrate animal research, you must briefly discuss POTENTIAL ALTERNATIVES and present a detailed justification for use of vertebrate animals.** See instructions on p. 15 of the International Rules.

**D. Bibliography**

List at least five major references (*e.g.*, science journal articles, books, internet sites) from your library research. If you plan to use vertebrate animals, give an additional animal care reference.

Research Plan: The Surface Warfare Simulator (SWS) computer program

- A. **Question Being Addressed:** Is a First-Person Shooter (FPS) simulation an adequate training tool for Surface Warfare?
- B. **Engineering Goals:** Develop a 3D Surface Warfare Simulator (SWS) based off of a primitive FPS engine. Work with a naval lieutenant to make improvements to the initial demo release of the Surface Warfare Simulator (SWS). To create an engaging program that will increase the productivity of communication coordination training and encourage the proper usage of military operations jargon for sailors involved in Surface Warfare scenarios.
- C. **Detailed Description of Procedure:** After the initial showing of the surface Warfare Simulator, I will meet with the lieutenant monthly as I integrate suggested improvements. So far I have meet with the lieutenant once, and the improvements he suggested were: integrate a voice or text messaging system to help facilitate communication within the simulated scenarios, move the gun mount locations, create a system to assign player locations, and limit the movement of players and guns.

D. Bibliography:

Young, Vaughan. Programming a Multiplier FPS in DirectX. Hingham, MA: Charles River Media, 2005.

Young, Vaughan. Code Red Games. 11 Jun. 2005. <http://www.coderedgames.com>.

Donovan, Steve. C++ By Example. Indianapolis, IN: Que Corporation, 2002.

Jones, Wendy. Beginning DirectX 9. Boston, MA: Premier Press, 2004.

Microsoft Corporation. Direct X Documentation for C++. Microsoft DirectX 9 SDK: October 2004.



# Tidewater Science Fair

## 2005-2006 Student Checklist

School Division Virginia Beach city Public Schools Category: Computer Science  
Student Name Katherine Kenyon Division: Jr. X Sr. X  
PRINT

ALL ITEMS ON THIS FORM MUST BE CHECKED AND THE FORM MUST BE SIGNED BY THE STUDENT, PARENT, AND TEACHER. THIS FORM MUST BE PAGE 1 OF YOUR APPLICATION PACKET.

### ALL PROJECTS

BE CERTAIN THAT ALL BLANKS ON ALL FORMS ARE COMPLETED AND ALL SIGNATURES AND DATES ARE PRESENT. THE FORMS SHOULD THEN BE STAPLED IN ORDER BEHIND THIS CHECKLIST.

- ☒ Tidewater Science Fair Application
- ☒ Research Plan—Form 1A completed and signed, with Research Plan attached \*
- ☒ Approval Form (1B) completed and signed\*
- ☒ Checklist for Adult Sponsor/Safety Assessment Form (1)\*
- ☐ Abstract (a summary of your work and findings)
- ☐ Media Release Form
- ☐ Project Notebook (to be brought to the Fair by student for display with project)
- ☐ Research Paper (Recommended-to be brought to the Fair by student for display with project)
- ☐ Project display meets Display and Safety Regulations

### CERTAIN PROJECTS

ADDITIONAL FORMS ARE NEEDED FOR CERTAIN TYPES OF PROJECTS. THESE FORMS MUST BE SIGNED PRIOR TO THE START OF EXPERIMENTATION.

- N/A If your project involves human subjects in any way, complete Human Subjects Forms (4), which must be signed by your school division's Institutional Review Board **BEFORE** experimentation begins. If the IRB determines risk to human subjects, you must include evidence of informed consent from each subject AND you must include a completed Qualified Scientist Form(2).\*
- N/A If your project involves non-human vertebrates, complete Qualified Scientist Form (2) or Designated Supervisor Form (3) and Vertebrate Animal Form (5A or 5B).\*
- N/A If your project involves microorganisms, controlled substances, hazardous substances/devices, recombinant DNA, fresh tissue, blood or body fluids, complete Qualified Scientist Form (2) or Designated Supervisor Form (3).\*
- N/A If your project involves microorganisms, rDNA, fresh tissue, blood or body fluids, complete Potentially Hazardous Biological Agents Form (6A).\*
- N/A If your project is conducted in an institutional or industrial setting (hospital, Thomas Jefferson Lab, NASA, a University, etc.), complete Form 1C.\*
- N/A If your project is a continuation in the same field of study from a previous year(s)' project, complete Form 7.\*

These items constitute your Tidewater Science Fair Application Packet. Submit two stapled copies of your application packet. RETAIN THE ORIGINAL APPLICATION PACKET and BRING IT WITH YOU TO THE FAIR.

Katherine Kenyon  
Student's Name Printed

Katherine Kenyon  
Student Signature

11/14/05  
Date

Ocean Lakes High School  
School

[Signature]  
Parent/Guardian Signature  
[Signature]  
Parent Signature

11/14/05  
Date

\*These forms may be found in the ISEF Handbook or on the web site: <http://www.sciserv.org/isef/>



## 55TH ANNUAL TIDEWATER SCIENCE FAIR APPLICATION 2005-2006

(Please Print or Type)

NAME/TEAM SPOKESPERSON: Katherine Kenyon Gender: (circle) M or F  
(If TEAM, other Members on Back)

Home Address 2248 Natoma Drive Virginia Beach 23456  
Number Street City Zip Code

Email Address: katherinekenyon@gmail.com Phone Number: (757) 471-6115

School Name Ocean Lakes High School

School Address 885 Schumann Drive Virginia Beach 23454  
Number Street City Zip Code

Title of Entry: The Surface Warfare Simulator (SWS) computer program

Division: \_\_\_\_\_ Junior (circle Gr. 6,7,8) X Senior (Circle Gr. 9,10,11,12)

Category\* Computer science

Will you require an electrical outlet for your display? Yes X No \_\_\_\_\_

**The student is responsible for providing his/her own 3-prong extension and all equipment needed for the display on the table.**

**AN APPLICATION NOT SIGNED BY AN ADULT-SPONSOR WILL NOT BE CONSIDERED.**

I certify that the student(s) names on this application is/are a student(s) of the named school.

Mark Clemente

Name of Adult-Sponsor (Please Print)

Signature of Adult-Sponsor

These forms must be submitted no later than February 10, 2006, to a Tidewater Science Congress representative for your school system. **Send two (2) copies of the application, abstract, and all required forms. Keep the original of all forms to display with your project.**

Accepted applications will be notified between February 20-25, 2006. All acceptance decisions of the Tidewater Science Congress Advisory Committee will be final. The Tidewater Science Congress does not make the decision to place the student in the proper category. The student and his/her sponsor make that selection.

**THERE IS NO APPEALS PROCESS. THE DECISION OF THE JUDGES IS FINAL.**

- Select the category that best fits your research from the list below. See pages 4 & 9 (ISEF rules) for complete description of each category and all projects.

Behavioral and Social Sciences  
Biochemistry  
Botany  
Chemistry  
Computer Science

Earth Science  
Engineering  
Environmental Sciences  
Mathematics  
Medicine/Health

Microbiology  
Physics  
Space Science  
Zoology  
Team Projects